Cloning of the gene encoding the 1-aminocyclopropane-1-carboxylate (ACC) deaminase to E. coli and study of its expression - Minerva Biotecnologic...
File Edit View History Bookmarks Tools Help
minerva biotecnologica owlia - ... | Minerva Biotecnologica 2012 D... | Cloning of the gene encoding t... | Cloning of the gene encoding t... | صفحه اصلی
www.minervamedica.it/it/riviste/minerva-biotecnologica/articolo.php?cod=R04Y2012N04A0123
coli and study of its expression

I TUOI DATI
Modifica i dati personali
Modifica la password
Modifica le tue aree di interesse
I TUOI ORDINI
Ordine da completare
Ordini completati
CESTINO ACQUISTI
N. prodotti: 0
Totale ordine: € 0,00
Dettagli e completamento ordine
COME ORDINARE
Riviste
Libri
I TUOI ABBONAMENTI
Attiva
Visualizza
Contatta ufficio abbonamenti
I TUOI ARTICOLI
Visualizza
ACCESSIBILITÀ
Carattere normale
Carattere più grande
Solo testo
Alta leggibilità

ULTIMO FASCICOLO | ARCHIVIO | EPUB AHEAD OF PRINT | I PIÙ LETTI

MINERVA BIOTECNOLOGICA

Minerva Biotecnologica 2012 Dicembre;24(4):123-8

ORIGINAL ARTICLES

Cloning of the gene encoding the 1-aminocyclopropane-1-carboxylate (ACC) deaminase to E. coli and study of its expression

Sadrnia M. [1], Maksimava N. [1], Khromsova E. [1], Stanislavich S. [1], Owlia P. [2, 3], Arjomandzadegan M. [4]

[1] *Department of Genetics, Faculty of Biology, Belarusian State University, Minsk, Belarus;*
[2] *Department of Microbiology, Faculty of Medicine, Shahed University, Tehran, Iran;*
[3] *Antimicrobial Resistance Research Center, Tehran University of Medical Sciences, Tehran, Iran;*
[4] *Tuberculosis and Pediatric Infectious Research Center, Arak University of Medical Sciences, Arak, Iran*

Aim. The purpose of the study was to optimize the conditions for transferring the aminocyclopropane-1-carboxylate (ACC) gene (isolated from a rhizosphere bacterium) to Escherichia coli.
Methods. A collection of 18 rhizosphere bacteria of the genus Pseudomonas was screened for the presence of the acdS gene by PCR and ACC deaminase activity assay. Purified acds was ligated on plasmid pXcmKn12 to yield a pACC3 plasmid carrying the acds gene. The recombinant plasmid pACC3 was transferred to Escherichia coli DH5 alpha (E. coli DH5α) cells.Restriction analysis of the plasmid was accomplished at the Bam HI and SmaI restriction sites to confirm cloning of the gene. Enzyme production assay was done to ensure gene expression in transformed E. coli DH5α, in comparison with E. coli DH5α (as control) and P. mendocina BKMB 1299.
Results. Three out of eighteen strains of Pseudomonas harbored the gene encoding ACC deaminase. The highest specific ACC deaminase activity was detected in P. mendocina BKMB 1299. The successfully purified fragment was ligated in the T-vector and cloned in E. coli DH5α cells. The transformed cells grown in culture medium containing antibiotics demonstrated plasmid transmission. pACC3 plasmid (recombinant) purified from the cells was successfully restricted at Bam HI and SmaI, confirming that the acdS -gene was cloned in the bacterium. Comparison studies of measured enzyme production (gene expression) by alpha-keto butyrate production assay in transformed E. coli DH5α, E. coli DH5α, and P. mendocina BKMB 1299 revealed the formation of 0.0, 0.4 and 1.06 µmol alpha-ketobutirarte mg protein/min, respectively.
Conclusion. The gene encoding ACC deaminase was transferred to E. coli DH5α and successfully expressed. In the next step, the gene should be cloned in proper rizosphere bacterium.

lingua: Inglese

FULL TEXT | ESTRATTI

inizio pagina

Copyright © 2012-2013 Edizioni Minerva Medica
Dati societari | Privacy policy | Termini e condizioni

start | F:\ | Cloning of the gene e... | EN | 02:23 ب.ظ